ABSTRACT

A program and method for route calculation for use with a navigation system and used with a map database that represents a road network in a geographic region. A route calculation program is adapted to find at least òne solution route between a first location on a road network and a second location on the road network. The route calculation program includes a first search tree associated with the first location and a second search tree associated with the second location. Each search tree is adapted to hold gates. Each of the gates represents a physical position on the road network and a direction from the position to another location along a path on the road network. The route calculation program also includes at least one priority queue associated with one of the search trees. The priority queue assigns a priority to one of the gates in the associated search tree based upon an evaluation using a search algorithm. The gate identified as having a higher priority than any other gate in its respective search tree is expanded to determine one or more successor gates thereof. Each of these successor gates so formed is compared to the gates in the other search tree. The process of growing at least one of the search trees by expanding the gate in the search tree that has a higher priority than any other gate in the search tree is continued until a gate in one search tree corresponds to at least one gate in the other search tree.